

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference IRN 632595	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">FOR FURTHER ACTION</div> <div>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</div> </div>
International application No. PCT/AU00/01510	<div style="display: flex; justify-content: space-between;"> <div>International filing date (<i>day/month/year</i>) 7 December 2000</div> <div>(Earliest) Priority Date (<i>day/month/year</i>) 7 December 1999</div> </div>
Applicant MONASH UNIVERSITY et al	

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of **5** sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☒ **Unity of invention is lacking** (See Box II).

4. With regard to the **title**, ☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**, ☒ the text is approved as submitted by the applicant

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☒ **None of the figures**

☐ because the applicant failed to suggest a figure

☐ because this figure better characterizes the invention

INTERNATIONAL SEARCH REPORT

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Box I Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos :

because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos :

because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos :

because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box II Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. Claims 1-21, 25 and 33-44 are directed to neural stem cells, cell culture, its use and preparation. It is considered that 'neural stem cells' comprises a first "special technical feature".

2. Claims 22-24, 26-32 are directed to methods for nuclear transfer and embryo generation. It is considered that these methods of nuclear transfer and embryo generation comprises a second "special technical feature".

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.: 1-21, 25 and 33-44

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.

☒ No protest accompanied the payment of additional search fees.

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International application No.

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A. CLASSIFICATION OF SUBJECT MATTERInt. Cl. ⁷: C12N 5/06; 5/16; 5/22; A01K 67/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

AS BELOW

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

AS BELOW

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

STN (Medline): (neural or CNS or central nervous system) AND (progenitor or precursor or stem) ; (cultured? (5n) (proliferat? or continuous or long or propagat? or immortal?); ORBIT (Pluspat) : neural stem cell

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,Y ✓	WO 97/16534 A (Genentech, Inc) 09 May 1997; pages 1-3;17	1-21, 25, 33-44
X,Y ✓	US 6103530 A (Carpenter, M) 15 August 2000; column 2; Examples 1-8; claims 1-2	1-21, 25, 33-44
X ✓	US 5968829 A (Carpenter, M) 19 October 2000; claims	1-21, 25, 33-44

☒ Further documents are listed in the continuation of Box C
 ☒ See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

21 February 2001

Date of mailing of the international search report

5 June 2001

Name and mailing address of the ISA/AU

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ✓	US 5750376 A (Weiss et al); 12 May 1998; see columns 17-18, 22	1-21, 25, 33-44
X ✓	US A 5824489 (Anderson et al); 20 October 1998; see columns 11; claim 1	1-21, 25, 33-44
X ✓	Experimental Neurology vol.148, pp135-146 (1997) Svendsen et al. "Long-term Survival of Human Central Nervous System Progenitor Cells Transplanted into a Rat Model of Parkinson's Disease". See pages 135-136	1-21, 25, 33-44
X ✓	Experimental Neurology vol. 156, pp71-83 (1999) Vescovi et al "Isolation and Cloning of Multipotential Stem Cells from the Embryonic Human CNS and Establishment of Transplantable Human Neural Stem Cell Lines by Epigenetic Stimulation". See page 75	1-21, 25, 33-44
X ✓	Journal of Neurotrauma vol 16, pp 689-693 (1999) Vescovi et al "Isolation and Intracerebral Grafting of nontransformed Multipotential Embryonic Human CNS Stem Cells". See page 690	1-21, 25, 33-44
X ✓	Experimental Neurology vol 158, pp 265-278 (1999) Carpenter et al "In Vitro Expansion of a Multipotent Population of Human Neural Progenitor Cells"	1-21, 25, 33-44
X,Y ✓	TINS, vol 22, pp357-364 (1999) Svendsen et al "New prospects for human stem-cell therapy in the nervous system". See page 360	1-21, 25, 33-44
X ✓	Proc.Soc.Exp.Biol.Med, vol 224, pp 240-5 (Sep.2000) Kuhholzer et al "Advances in livestock nuclear transfer".	22, 23, 24, 26-32
X ✓	Proc.Nat.Acad.Sci, vol 97, pp 990-995 (Feb.2000) Kubota et al "Six cloned calves produced from adult fibroblast cells after long-term culture." See page 991	22, 23, 24, 26-32
X ✓	Science, vol 288 pp 665-669 (2000) Lanza et al "Extension of Cell Life-Span and Telomere Length in Animals Cloned from Senescent Somatic Cells"	22, 23, 24, 26-32

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/01510

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
WO	9716534	AU	76634/96	CA	2234230	EP	858502
US	6103530 ✓	AU	93059/98	EP	1007636	US	5968829 ✓
		WO	9911758				
US	5750376 ✓	AU	22425/92	CA	2113118	EP	594669
		FI	935929	NO	940056	WO	9301275
		WO	9416718	US	5981165	US	5851832
		US	5980885	US	6071889	AU	51474/93
		CA	2147162	EP	664832	FI	951677
		NO	951378	WO	9409119	AU	53676/94
		AU	49241/97	EP	669973	FI	952022
		NO	951617	WO	9410292	AU	60983/94
		CA	2155024	EP	681477	FI	953569
		NO	952985	AU	80561/94	CA	2175992
		CN	1141058	EP	728194	FI	961855
		NO	961859	WO	9513364	AU	35152/95
		CA	2200709	EP	783693	FI	971168
		NO	971245	WO	9609543	AU	38367/95
		CN	1170435	EP	792350	FI	971956
		NO	972171	WO	9615226	AU	38366/95
		CN	1170434	EP	792349	FI	971955
		NO	972170	WO	9615224		
US	5824489 ✓	EP	658194	NZ	256154	WO	9402593
		US	5589376	US	5654183	US	5672499
		US	5693482	US	5849553	US	5928947
		US	6033906	US	6001654	AU	72580/98
		WO	9848001				
END OF ANNEX							